Melton Hill



TVA retrofitted numerous environmentally beneficial technologies throughout the existing Melton Hill campground and recreation area to create the Melton Hill Dam Sustainable Recreation Area.

The Melton Hill Dam Sustainable Recreation Area initiative is designed to generate clean power, reduce energy and water use, minimize storm water impacts, and increase waste recycling. The demonstration will serve to educate members of the public on their personal sustainability choices and provide a research model to help TVA and other recreation management agencies meet their sustainability goals.

At the Melton Hill Dam Sustainable Recreation Area, TVA is demonstrating the following technologies:

SOLAR POWER



- Entrance sign is powered by a solar array and battery storage unit that powers the light at night
- Solar collectors power the LED (light-emitting diode) lights on the street light poles from the entrance to the angler's restroom
- Two solar thermal water heating systems compared to electric water heaters
- Nine different solar collection devices, six on a pavilion, to compare performance of collectors and inverter technologies, generating up to 23 kilowatts of clean and renewable energy



WIND POWER

- One 70 foot turbine generates up to 2.4 kilowatts of clean and renewable energy

ENERGY EFFICIENCY



- Motion light sensors in the public-use buildings
- LED lights have been retrofitted into existing street lighting and building fixtures
- New light poles are fitted with LED lights
- Fluorescent fixtures upgraded in other buildings
- Solar thermal water heating systems
- A General Electric heat pump water heater and a high-efficiency heat pump HVAC system retrofitted in the overlook building



WATER CONSERVATION

- Dual-flush toilet fixtures and waterless and low-flow urinals installed
- Motion detectors and low-flow fixtures installed on the sinks
- Low-flow showerheads



STORM WATER MANAGEMENT

- Riparian buffers are maintained to allow filtering of pollutants from rainwater runoff before it enters the lake and river
- Native grass plantings to assist with runoff filtration
- Pervious pavers are in use to assist in water filtration



COAL COMBUSTION PRODUCTS REUSE

- Roofing shingles on new structures and retrofitted to existing buildings
- Pavers used in pathways, landscaping and stone veneer



ELECTRIC VEHICLE CHARGING

- Four dedicated vehicle charging outlets
- Various electric maintenance vehicles tested on the site



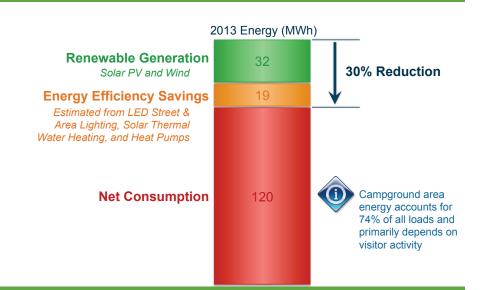
RECYCLING

- Solid waste recycling for campground and pavilion users

View Real-Time and Historical Site Performance Dashboard at www.tva.com/meltonhill

Net Energy Reduced by 30% for 2013

A combination of renewable generation and energy efficiency savings (2012 energy reduction 27%)



Annual Energy Generation & Consumption

Annual Energy	2012 (MWh)	2013 (MWh)	Change
Generation*	34.0	31.6	-7.1%
Consumption	177.0	151.4	-14.5%
Net (consumed)	143.0	119.8	-16.2%
Generation offsets consumption by	19.2%	20.9%	

^{*} Generation = Solar + Wind. In each year, wind power generated 0.2MWh

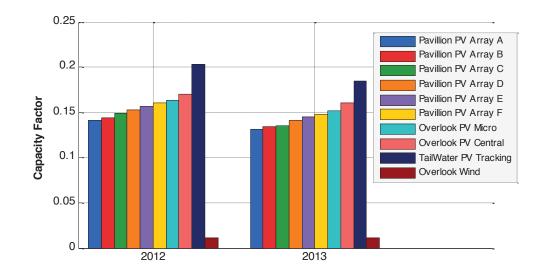
Reduced Emissions

Based on renewable energy generated in 2012 and 2013

Emission	Conversion Basis	2012 (lb)	2013 (lb)
CO ₂	1.92 lb/kWh	65,400	60,700
SO ₂	5.42x10 ⁻³ lb/kWh	185	171
NO_x	1.51x10 ⁻³ lb/kWh	51	48

Annual Capacity Factor per System

9 PV systems and 1 wind turbine, computed for 2012-2013



Water conservation improvements were integrated at the Melton Hill Sustainable Recreation Area in 2010.

Based on historical data prior to 2010 an average of 53% reduction in water use was achieved during the 2010-2013 evaluation period.